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EXAMINER

NGUYEN, PHUONGCHAU BA

ART UNIT	PAPER NUMBER
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2665

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,300

Applicant(s)

LIU, YUEFENG

Examiner

Phuongchau Ba Nguyen

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/27/02; 4/16/02; 9/6/02; 9/17/02; 10/01/02; 3/17/03; 4/30/03; 11/17/03; 11/13/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 3-6, 10-13, 18-21, 23-26, 28-31, 33-36 are objected to because of the following informalities: the ":" should be changed to ---,--- or deleted because the notation ":" indicates a list of items or steps. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
4. Claims 1-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Arrow (6,175,917).

Regarding claim 1, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured from nodes (VPN units, fig.1) in a public network (public network 100-fig.1), comprising:*

receiving (receiving at VPN unit 115-fig.1) a packet from a source node (node 112-fig.1) in the first private network (LAN 110-fig.1), (see column 7, lines 20-25);

determining (by the VPN unit 115-fig.1) whether the packet (from node 112-fig.1) is destined for the second private network (in the VPN group, fig.1), (see column 7, lines 28-48); and

forwarding the packet to a destination node (remote client 140 of the VPN unit 145 -fig.1) in the second private network (of the VPN group, see step 22-fig.2) based on the determination, (see column 8, lines 18-19).

Regarding claim 2, Arrow further discloses that *said forwarding comprising:*

(1) obtaining an address mapping corresponding to the destination node based on the determination; and

(2) sending the packet to the destination node using the address mapping, the address mapping reflecting a relationship between (a) an internal address for the destination node for use in communicating among nodes in the second private network

and (b) an external address for the destination node suitable for communicating over the public network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32 (corresponding to (1)).

Arrow further discloses the VPN unit 115-fig.1 sending a received data packet to the VPN unit 145-fig.1 using the LUR, see column 7, line 46-column 8, line 20 (corresponding to (2)). The LUR reflects a relationship between an internal address for the destination node VPN unit 145-fig.1 in the Virtual Private Network for communication among the VPN units, see column 7, lines 28-32 (corresponding to (a)), and an external address for the destination node VPN unit 145-fig.1 for communication over the public network, see column 7, lines 28-32 (corresponding to (b)).

Regarding claim 3, Arrow discloses when the data packet sending from an end-station 112-fig.1 to a router 114-fig.1, the packet is encapsulated (corresponding to *adding external address*) for transmission to a destination node 140 in the VPN unit 145-fig.1 in the public network 100-fig.1 through the VPN unit 115, see column 7, lines 20-25.

Art Unit: 2665

Regarding claim 4, Arrow further discloses the VPN unit 115-fig.1 *encrypting the packet* in sending process from a source address 112-fig.1 to a destination address 140-fig.1 of VPN unit 145-fig.1 in the VPN, see column 7, lines 57-60.

Regarding claim 5, Arrow further discloses the VPN unit 115-fig.1 accessing the LUR of the transmitting packet from the Lookup Tables. This LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32, also see claim 2, (corresponding to *accessing the address mapping based on a determination that the packet is destined for the second private network*).

Regarding claim 6, Arrow further discloses the VPN unit 115-fig.1 accessing the Lookup Tables to obtain a LUR for a destination address in the transmitting packet. This LUR identifies the existence of a member of individual VPN, which corresponds to the destination 140-fig.1 via the VPN unit 145-fig.1, see column 7, lines 28-32, 50-52, also see claim 2, (corresponding to *determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 7, Arrow discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured from nodes (VPN units, fig.1) in a public network (public network 100-fig.1), comprising:*

receiving (receiving at VPN unit 115-fig.1) a packet from a source node (node 112-fig.1) in the first private network (LAN 110-fig.1), (see column 7, lines 20-25);

determining (by the VPN unit 115-fig.1) whether the packet (from node 112-fig.1) is destined for the second private network (in the VPN group, fig.1), (see column 7, lines 28-48);

(1) obtaining an address mapping corresponding to the destination node based on the determination; and

(2) sending the packet to the destination node using the address mapping, the address mapping reflecting a relationship between (a) an internal address for the destination node for use in communicating among nodes in the second private network and (b) an external address for the destination node suitable for communicating over the public network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32 (corresponding to (1))

Arrow further discloses the VPN unit 115-fig.1 sending a received data packet to the VPN unit 145-fig.1 using the LUR, see column 7, line 46-column 8, line 20 (corresponding to (2)). The LUR reflects a relationship between an internal address for the destination node VPN unit 145-fig.1 in the Virtual Private Network for

Art Unit: 2665

communication among the VPN units, see column 7, lines 28-32 (corresponding to (a)), and an external address for the destination node VPN unit 145-fig.1 for communication over the public network, see column 11, lines 28-32 (corresponding to (b)).

Regarding claim 8, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) that uses a public network infrastructure (public network 100-fig.1), comprising:*

receiving (receiving at VPN unit 145-fig.1) a packet from a source node (remote node 140-fig.1) in the second private network (VPN group-fig.1), (see column 8, lines 21-26);

determining (by the VPN unit 145-fig.1) whether the packet (from the remote node 140-fig.1) is destined for the second private network (in the VPN group, fig.1), (see column 8, lines 28-32); and

forwarding the packet to a destination node (node 112 of the VPN unit 115-fig.1) in the second private network (of the VPN group, see step 320-fig.3) based on the determination, (see column 8, lines 28-52).

Regarding claim 9, Arrow further discloses *said forwarding comprising:*

(1) *obtaining an address mapping corresponding to a router node based on the determination;*

(2) *sending the packet to the router node using the address mapping, wherein (a) the router node forwards the packet to the destination node based on an internal address in the packet for the destination node suitable for communicating among nodes in the first private network.*

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 115-fig.1, , see column 8, lines 26-32 (corresponding to (1)).

Arrow further discloses the VPN unit 145-fig.1 sending the received data packet from the node 140 to the VPN unit 115-fig.1 (*a router node*) using the LUR, see column 8, lines 21-32 (corresponding to (2)). The VPN unit 115-fig.1 (*the router node*) forwards the packet received from the VPN unit 145-fig.1 based on an internal address reflected from the LUR for the destination node 112-fig.1 in the LAN 110-fig.1 (*first private network*) for communication among the nodes 111 & 113, see column 6, lines 8-18; column 8, lines 42-52 (corresponding to (a)).

Art Unit: 2665

Regarding claim 10, The limitation of this claim calls for a packet transmission from a source 140-fig.1 to destination 112-fig.1, which is a reversed process of claim 3.

Therefore, a data packet sending from a remote station 140-fig.1 should be encapsulated (corresponding to *adding the external address to the packet*) for transmission over the public network 100-fig.1 to destination 112-fig.1 via the VPN unit 145, 115, respectively, see column 7, lines 20-25.

Regarding claim 11, Arrow further discloses the VPN unit 145-fig.1 *encrypting the packet* in sending process from a source address 140-fig.1 to a destination address 112-fig.1 of the VPN unit 115-fig.1 in the VPN, see column 7, lines 46-50; column 6, lines 61-67.

Regarding claim 12, Arrow discloses the VPN unit 145-fig.1 accessing the LUR of a transmitting packet from the LookUp Tables maintaining by the VPN unit. If the LUR of the transmitting packet does not reflect a destination address 112-fig.1, then the transmitting packet from the node 140-fig.1 is not destined for the VPN unit 115-fig.1 to reach the unit 112-fig.1, see claim 8, also see also column 8, lines 29-33 (corresponding to *accessing the address mapping based on a determination that the packet is not destined for the second private network*).

Regarding claim 13, Arrow discloses the VPN unit 145-fig.1 accessing the Lookup Tables to obtain the LUR for a destination address in the transmitting packet. This LUR identifies the existence of a member of individual VPN, which corresponds to a destination 112-fig.1 of the VPN unit 115-fig.1, see claim 9, also see column 8, lines 26-32, (corresponding to *determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 14:

Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) that uses a public network infrastructure (public network 100-fig.1), comprising:*

receiving (receiving at VPN unit 145-fig.1) a packet from a source node (remote node 140-fig.1) in the second private network (VPN group-fig.1), (see column 8, lines 21-26);

determining (by the VPN unit 145-fig.1) whether the packet (from the remote node 140-fig.1) is destined for the second private network (in the VPN group, fig.1), (see column 8, lines 28-32); and

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for the transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 115-fig.1, *(a router node)*, see column 8, lines 26-32 *(corresponding to obtaining an address mapping corresponding to a router node based on the determination)*.

Arrow further discloses the VPN unit 145-fig.1 sending a received data packet to the VPN unit 115-fig.1 *(a router node)* using the LUR, see column 8, lines 21-32 *(corresponding to sending the packet to the router node using the address mapping)*. The VPN unit 115-fig.1 *(the router node)* forwards the packet received from the VPN unit 145-fig.1 based on an internal address reflected from the LUR for the destination node 112-fig.1 in the LAN 110-fig.1 *(first private network)* for communication among the nodes 111 & 113, see column 6, lines 8-18; column 8, lines 42-52 *(corresponding to the router node forwards the packet to the destination node in the first private network based on an internal address in the packet for the destination node suitable for communicating among nodes in the first private network)*.

Regarding claim 15, Arrow discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *an apparatus* (VPN unit 115-fig.1 & also see fig.4) *for communicating between a first private network (a LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155 in fig.1,*

Art Unit: 2665

col.2, lines 22-27) *that uses a public network infrastructure* (public network 100-fig.1), *comprising:*

a memory (a RAM 402-fig.4) *having program instructions* (instructions), see column 8, lines 59-60; *and*

a processor (a processor 400-fig.4) *responsive to* (for executing) *the program instructions* (instructions stored in the RAM 402-fig.4) *to receive a packet from a source node* (a node 112-fig.1) *in the first private network* (a LAN 110-fig.1), *determine whether the packet is destined for the second private network* (the VPN group, fig.1) *and forward the packet to a destination node* (a remote client 140-fig.1) *in the second private network based on the determination* (a processor 400-fig.4 receives a transmitting packet from a source node 112-fig.1 in the LAN 110-fig.1. The processor 400-fig.4 determines whether the transmitting packet is destined for the VPN unit 145-fig.1 in the VPN group-fig.1, and forwards the transmitting packet to a destination node 140-fig.1 of the VPN unit 145 in the VPN group, see column 7, lines 20-48; see column 8, lines 18-19; and also see claim 1).

Regarding claim 16, Arrow discloses A Method and Apparatus for Swapping A

Computer Operating System. In Arrow, *an apparatus* (a VPN unit 145-fig.1 & also see fig.4) *for communicating between a first private network* (a LAN 110-fig.1) *and a second private network* (a VPN group including VPN units 115, 125, 135, 145, 155, fig.1, col.2,

Art Unit: 2665

lines 22-27) *that uses a public network infrastructure (public network 100-fig.1), comprising:*

a memory (a RAM 402-fig.4) having program instructions (instructions), see column 8, lines 59-60; and

a processor (a processor 400-fig.4) responsive to (for executing) the program instructions (instructions stored in the RAM 402-fig.4) to receive a packet from a source node (a remote client 140-fig.1) in the second private network (the VPN group, fig.1), determine whether the packet is destined for the second private network (the VPN group, fig.1), and forward the packet to a destination node (node 112-fig.1) in the first private network (LAN 110) based on the determination (a processor 400-fig.4 receives a transmitting packet from a source node 140-fig.1 of the VPN unit 145-fig.1 in the VPN group-fig.1. The processor 400-fig.4 determines whether the transmitting packet is destined for the VPN unit 115-fig.1 in the VPN group-fig.1, and forward the transmitting packet to a destination node 112-fig.1 of the VPN unit 115 in the VPN group, see column 8, lines 24-51. see column 6, lines 8-14, and also see claim 8).

Regarding claim 17, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, a *computer-readable medium (a RAM 400-fig.4) containing instructions for performing a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured*

Art Unit: 2665

from nodes (VPN units, fig.1) in a public network infrastructure (public network 100-fig.1), comprising:

receiving (receiving at VPN unit 115-fig.1) a packet from a source node (node 112-fig.1) in the first private network (LAN 110-fig.1), see column 7, lines 20-25;

determining (by the VPN unit 115-fig.1) whether the packet (from node 112-fig.1) is destined for the second private network (in the VPN group, fig.1), see column 7, lines 28-48; and

(1) obtaining an address mapping corresponding to the destination node based on the determination; and

(2) sending the packet to the destination node using the address mapping, the address mapping reflecting a relationship between (a) an internal address for the destination node for use in communicating among nodes in the second private network and (b) an external address for the destination node suitable for communicating over the public network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32 (corresponding to (1))

Arrow further discloses the VPN unit 115-fig.1 sending a received data packet to the VPN unit 145-fig.1 using the LUR, see column 7, line 46-column 8, line 20 (corresponding to (2)). The LUR reflects a relationship between an internal address for the destination node VPN unit 145-fig.1 in the Virtual Private Network for communication among the VPN units, see column 7, lines 28-32 (corresponding to (a)), and an external address for the destination node VPN unit 145-fig.1 for communication over the public network, see column 11, lines 28-32 (corresponding to (b)).

Regarding claim 18, Arrow discloses when the data packet sending from an end-station 112-fig.1 to a router 114-fig.1, the packet is encapsulated (corresponding to *adding external address*) for transmission to a destination node 140 in the VPN unit 145-fig.1 in the public network 100-fig.1 through the VPN unit 115, see column 7, lines 20-25

Regarding claim 19, Arrow further discloses the VPN unit 115-fig.1 *encrypting the packet* in sending process from a source address 112-fig.1 to a destination address 140-fig.1 of VPN unit 145-fig.1 in the VPN, see column 7, line 46-column 8, line 20 & specific in column 7, lines 57-60; also see column 6, lines 61-67.

Art Unit: 2665

Regarding claim 20, Arrow further discloses the VPN unit 115-fig.1 accessing the LUR of the transmitting packet from the Lookup Tables. This LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32, also see claim 17, (corresponding to *accessing the address mapping based on a determination that the packet is destined for the second private network*).

Regarding claim 21 Arrow further discloses the VPN unit 115-fig.1 accessing the Lookup Tables to obtain a LUR for a destination address in the transmitting packet. This LUR identifies the existence of a member of individual VPN, which corresponds to the destination 140-fig.1 via the VPN unit 145-fig.1, see column 7, lines 28-32, 50-52, also see claim 17, (corresponding to *determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 22, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, a *computer-readable medium* (a RAM 400-fig.4) *containing instructions for performing a method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured from nodes (VPN units, fig.1) in a public network infrastructure (public network 100-fig.1), comprising:*

receiving (receiving at VPN unit 145-fig.1) a packet from a source node (remote node 140-fig.1) in the second private network (VPN group-fig.1), see column 8, lines 21-26;

determining (by the VPN unit 145-fig.1) whether the packet (from the remote node 140-fig.1) is destined for the second private network (in the VPN group, fig.1), see column 8, lines 28-32; and

(1) obtaining an address mapping corresponding to a router node based on the determination;

(2) sending the packet to the router node using the address mapping, wherein (a) the router node forwards the packet to a destination node in the first private network based on an internal address in the packet for the destination node suitable for communicating among nodes in the first private network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 115-fig.1, , see column 8, lines 26-32 (corresponding to (1)).

Arrow further discloses the VPN unit 145-fig.1 sending the received data packet from the node 140 to the VPN unit 115-fig.1 (*a router node*) using the LUR, see column 8, lines 21-32 (corresponding to (2)). The VPN unit 115-fig.1 (*the router node*) forwards the packet received from the VPN unit 145-fig.1 based on an internal address reflected

from the LUR for the destination node 112-fig.1 in the LAN 110-fig.1 (*first private network*) for communication among the nodes 111 & 113, see column 6, lines 8-18; column 8, lines 42-52 (corresponding to (a)).

Regarding claim 23, The limitation of this claim calls for a packet transmission from a source 140-fig.1 to destination 112-fig.1, which is a reversed process of claim 3. Therefore, a data packet sending from a remote station 140-fig.1 should be encapsulated (corresponding to *adding the external address to the packet*) for transmission over the public network 100-fig.1 to destination 112-fig.1 via the VPN unit 145, 115, respectively, see column 7, lines 20-25.

Regarding claim 24, Arrow further discloses the VPN unit 145-fig.1 *encrypting the packet* in sending process from a source address 140-fig.1 to a destination address 112-fig.1 of the VPN unit 115-fig.1 in the VPN, see column 7, lines 46-50; column 6, lines 61-67.

Regarding claim 25, Arrow discloses the VPN unit 145-fig.1 accessing the LUR of a transmitting packet from the LookUp Tables maintaining by the VPN unit. If the LUR of the transmitting packet does not reflect a destination address 112-fig.1, then the transmitting packet from the node 140-fig.1 is not destined for the VPN unit 115-fig.1 to

Art Unit: 2665

reach the unit 112-fig.1, see also column 8, lines 29-33, and also see claim 22, (corresponding to *accessing the address mapping based on a determination that the packet is not destined for the second private network*).

Regarding claim 26, Arrow discloses the VPN unit 145-fig.1 accessing the Lookup Tables to obtain the LUR for a destination address in the transmitting packet. This LUR identifies the existence of a member of individual VPN, which corresponds to a destination 112-fig.1 of the VPN unit 115-fig.1, see claim 9, also see column 8, lines 26-32, also see claim 22, (corresponding to *determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 27, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, a *method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured from nodes (VPN units, fig.1) in a public network infrastructure (public network 100-fig.1), comprising:*

means for receiving (VPN unit 115-fig.1) a packet from a source node (node 112-fig.1) in the first private network (LAN 110-fig.1), see column 7, lines 20-25;

means for determining (by the VPN unit 115-fig.1) whether the packet (from node 112-fig.1) is destined for the second private network (in the VPN group, fig.1), see column 7, lines 28-48;

(1) means for obtaining an address mapping corresponding to the destination node based on the determination; and

(2) means for sending the packet to the destination node using the address mapping, the address mapping reflecting a relationship between (a) an internal address for the destination node for use in communicating among nodes in the second private network and (b) an external address for the destination node suitable for communicating over the public network infrastructure.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32 (corresponding to (1)).

Arrow further discloses the VPN unit 115-fig.1 sending a received data packet to the VPN unit 145-fig.1 using the LUR, see column 7, line 46-column 8, line 20 (corresponding to (2)). The LUR reflects a relationship between an internal address for the destination node VPN unit 145-fig.1 in the Virtual Private Network for communication among the VPN units, see column 7, lines 28-32 (corresponding to (a)),

and an external address for the destination node VPN unit 145-fig.1 for communication over the public network, see column 7, lines 28-32 (corresponding to (b)).

Regarding claim 28, Arrow discloses when the data packet sending from an end-station 112-fig.1 to a router 114-fig.1, the packet is encapsulated (corresponding to *adding external address*) for transmission to a destination node 140 in the VPN unit 145-fig.1 in the public network 100-fig.1 through the VPN unit 115, see column 7, lines 20-25.

Regarding claim 29, Arrow further discloses the VPN unit 115-fig.1 *encrypting the packet* in sending process from a source address 112-fig.1 to a destination address 140-fig.1 of VPN unit 145-fig.1 in the VPN, see column 7, line 46-column 8, line 20 & in specific column 7, lines 57-60.

Regarding claim 30, Arrow further discloses the VPN unit 115-fig.1 accessing the LUR of the transmitting packet from the Lookup Tables. This LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32, also see claim 27, (corresponding to *means for accessing the address mapping based on a determination that the packet is destined for the second private network*).

Art Unit: 2665

Regarding claim 31, Arrow further discloses the VPN unit 115-fig.1 accessing the Lookup Tables to obtain a LUR for a destination address in the transmitting packet. This LUR identifies the existence of a member of individual VPN, which corresponds to the destination 140-fig.1 via the VPN unit 145-fig.1, see column 7, lines 28-32, 50-52, also see claim 27, (*corresponding to determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 32:

Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, *an apparatus* (VPN unit 145-fig.1) *for communicating between a first private network* (LAN 110-fig.1) *and a second private network* (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) *configured from nodes* (VPN units, fig.1) *in a public network infrastructure* (public network 100-fig.1), *comprising:*

means for receiving (VPN unit 145-fig.1) *a packet from a source node* (remote node 140-fig.1) *in the second private network* (VPN group-fig.1), see column 8, lines 21-26;

means for determining (by the VPN unit 145-fig.1) *whether the packet* (from the remote node 140-fig.1) *is destined for the second private network* (in the VPN group, fig.1), see column 8, lines 28-32; *and*

(1) means for obtaining an address mapping corresponding to a router node based on the determination;

(2) means for sending the packet to the router node using the address mapping, (a) wherein the router node forwards the packet to a destination node in the first private network based on an internal address in the packet for the destination node suitable for communicating among nodes in the first private network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 115-fig.1, , see column 8, lines 26-32 (corresponding to (1)).

Arrow further discloses the VPN unit 145-fig.1 sending the received data packet from the node 140 to the VPN unit 115-fig.1 (*a router node*) using the LUR, see column 8, lines 21-32 (corresponding to (2)). The VPN unit 115-fig.1 (*the router node*) forwards the packet received from the VPN unit 145-fig.1 based on an internal address reflected from the LUR for the destination node 112-fig.1 in the LAN 110-fig.1 (*first private network*) for communication among the nodes 111 & 113, see column 6, lines 8-18; column 8, lines 42-52 (corresponding to (a)).

Regarding claim 33, The limitation of this claim calls for a packet transmission from a source 140-fig.1 to destination 112-fig.1, which is a reversed process of claim 27.

Art Unit: 2665

Therefore, a data packet sending from a remote station 140-fig.1 should be encapsulated (corresponding to *adding the external address to the packet*) for transmission over the public network 100-fig.1 to destination 112-fig.1 via the VPN unit 145, 115, respectively, see column 7, lines 20-25.

Regarding claim 34, Arrow further discloses the VPN unit 145-fig.1 *encrypting the packet* in sending process from a source address 140-fig.1 to a destination address 112-fig.1 of the VPN unit 115-fig.1 in the VPN, see column 7, lines 46-50; column 6, lines 61-67.

Regarding claim 35, Arrow discloses the VPN unit 145-fig.1 accessing the LUR of a transmitting packet from the LookUp Tables maintaining by the VPN unit. If the LUR of the transmitting packet does not reflect a destination address 112-fig.1, then the transmitting packet from the node 140-fig.1 is not destined for the VPN unit 115-fig.1 to reach the unit 112-fig.1, see claim 8, also see also column 8, lines 29-33 (corresponding to *accessing the address mapping based on a determination that the packet is not destined for the second private network*).

Regarding claim 36, Arrow discloses the VPN unit 145-fig.1 accessing the Lookup Tables to obtain the LUR for a destination address in the transmitting packet. This LUR

Art Unit: 2665

identifies the existence of a member of individual VPN, which corresponds to a destination 112-fig.1 of the VPN unit 115-fig.1, see claim 9, also see column 8, lines 26-32, (corresponding to *determining whether an address mapping exists for a destination address in the packet*).

Regarding claim 37, Arrow (6,175,917) discloses A Method and Apparatus for Swapping A Computer Operating System. In Arrow, a *method for communicating between a first private network (LAN 110-fig.1) and a second private network (a VPN group including VPN units 115, 125, 135, 145, 155-fig.1, col.2, lines 22-27) configured from nodes (VPN units, fig.1) in a public network (public network 100-fig.1), comprising:*

receiving, at VPN unit 115-fig.1, a first packet from a source node (node 112-fig.1) in the first private network (LAN 110-fig.1), see column 7, lines 20-25, wherein the router node (VPN unit 115-fig.1) facilitates connection between the first private network (the LAN 110-fig.1) and the second private network (the VPN group-fig.1)

determining (by the VPN unit 115-fig.1) whether the first packet (from node 112-fig.1) is destined for the second private network (VPN unit 145 in the VPN group, fig.1), see column 7, lines 28-48;

(1) obtaining an address mapping corresponding to the destination node based on the determination; and

(2) sending the packet to the destination node using the address mapping, the address mapping reflecting a relationship between (2a) an internal address for the destination node for use in communicating among nodes in the second private network and (2b) an external address for the destination node suitable for communicating over the public infrastructure.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 145-fig.1, see column 7, lines 28-32 (corresponding to (1)).

Arrow further discloses the VPN unit 115-fig.1 sending a received data packet to the VPN unit 145-fig.1 using the LUR, see column 7, line 46-column 8, line 20 (corresponding to (2)). The LUR reflects a relationship between an internal address for the destination node VPN unit 145-fig.1 in the Virtual Private Network for communication among the VPN units, see column 7, lines 28-32 (corresponding to (a)), and an external address for the destination node VPN unit 145-fig.1 for communication over the public network, see column 7, lines 28-32 (corresponding to (b)).

receiving (receiving at VPN unit 145-fig.1) a second packet from a source node (remote node 140-fig.1) in the second private network (VPN group-fig.1), see column 8, lines 21-26;

determining (by the VPN unit 145-fig.1) whether the second packet (from the remote node 140-fig.1) is destined for the second private network (VPN unit 115 in the VPN group, fig.1), see column 8, lines 28-32; and

(3) obtaining an address mapping corresponding to the router node based on the determination that the second packet is not destined for the second private network; and

(4) sending the packet to the router node using the address mapping corresponding to the router node, wherein (4a) the router node forwards the packet to a destination node in the first private network based on an internal address in the second packet for the destination node suitable for communicating among nodes in the first private network.

In Arrow, the determination of the source and destination of a transmitting packet is made with reference to Lookup Tables. Therefore, when a Lookup Result (LUR) for transmitting packet from the LookUp Tables maintain by the VPN unit is obtained, the LUR should correspond to a destination of the VPN unit 115-fig.1, see column 8, lines 26-33 (corresponding to (3)).

Arrow further discloses the VPN unit 145-fig.1 sending the received data packet from the node 140 to the VPN unit 115-fig.1 (*a router node*) using the LUR, see column 8, lines 21-32 (corresponding to (4)). The VPN unit 115-fig.1 (*the router node*) forwards the packet received from the VPN unit 145-fig.1 based on an internal address reflected from the LUR for the destination node 112-fig.1 in the LAN 110-fig.1 (*first private*


Art Unit: 2665

network) for communication among the nodes 111 & 113, see column 6, lines 8-18; column 8, lines 21-52 (corresponding to (4a)).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday 10:00AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Phuongchau Ba Nguyen
Examiner
Art Unit 2665